

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-000406**Date Inspected:** 03-Sep-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 2330**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 800**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

<b>CWI Name:</b>	Xu Bing, Xu Yan Kun & Huang Li			<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>

**Bridge No:** 34-0006**Component:** Caltrans Mock-Up 77.00 & 114.00**Summary of Items Observed:**

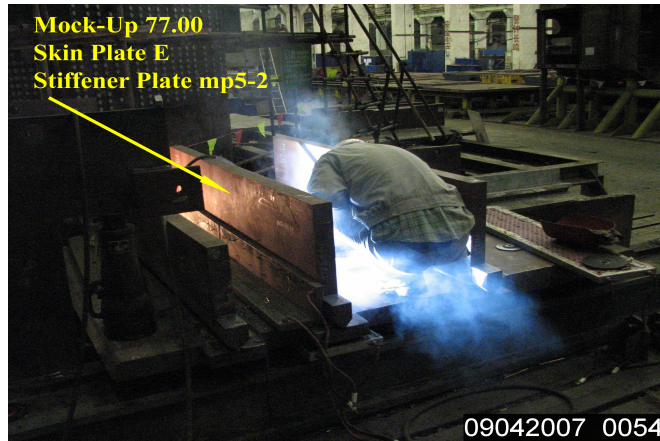
Caltrans Quality Assurance (QA) Inspector, Mike Hasler was present to observe the fitup, welding and associated activities relating to the fabricating of the Caltrans Mock-up #77.00 and 114.00, for the San Francisco Oakland Bay Self Anchored Suspension Bridge, at Zhenhua Port Machinery Company (ZPMC) facility on Changxing Island.

<b>Item</b>	<b>Description</b>	<b>WBS</b>	<b>Dwg No.</b>	<b>Status</b>
1	Mock-Up 77.00	NA	NA	Fabrication In Progress

Mock-Up 77.00, skin plate E assembly: Caltrans QA Inspector observed flux cored arc welding (FCAW) in progress at stiffener plate, piecemark mp5-2 to skin plate MA1. The weld joint is identified as MUSA-MA1-4A, complete joint penetration (CJP), double bevel T-joint. The welder is observed welding fill pass weld in the horizontal position and chipping and wire brushing during interpass weld cleaning. The approved welder is identified as Mr. Zhou Shijie. The welder is using welding procedure specification WPS-B-T2232-TC-U5-F, Revision 1. Caltrans QA observed ZPMC Quality Control (QC) Certified Welding Inspector (CWI) Mr. Xu Bing and Bureau Veritas inspector, Mr. Huang Li monitoring welding activities at the workstation. Caltrans QA measured current welding parameters at approximately 305 amps, 32 volts and 320 millimeters per minute (mm/min) travel speed. Preheat and interpass temperatures were verified during welding activities. The preheat temperature prior to the start of welding measures more than 110 Celsius (230 degree Fahrenheit) but less than 232 Celsius (450 degrees Fahrenheit) during maximum interpass temperature verification. FCAW welding consumable is verified and identified as Supercored 71H, classification E71T-1, diameter 1.4 mm (.055 inches). Following digital picture illustrates welding in progress.

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|---|----------------|----|----|-------------------------|
| 2 | Mock-Up 114.00 | NA | NA | Fabrication In Progress |
|---|----------------|----|----|-------------------------|

Mock-Up 114.00, skin plate B assembly, top plate: Caltrans QA Inspector observed submerged arc welding (SAW) in progress at skin plate mp1014 to MA101, weld number MUSC-MA-101-2. The approved welder operator is observed welding a partial joint penetration (PJP) fill and cover pass welding in the flat position. Welder is identified as Mr. Han Changhou. The welder is using welding procedure specification WPS-B-T-2321-B-P3-S, Revision 1. Caltrans QA measured current welding parameters at approximately 630 amps, 32 volts and travel speed, 480 millimeters per minute (mm/min). Preheat and interpass temperatures were verified during welding activities. Preheat temperature prior to the start of welding measures more than 110 degrees Celsius (230 degree Fahrenheit) but less than 232 degrees Celsius (450 degrees Fahrenheit) during maximum interpass temperature verification. SAW consumables were verified and identified as JW-3, classification EM12K, diameter 4.8 mm (.189 inches) electrode and, JF-B Flux, classification F7A2.

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|---|----------------|----|----|---------------------|
| 3 | Mock-Up 114.00 | NA | NA | ZPMC MT In Progress |
|---|----------------|----|----|---------------------|

Caltrans QA Inspector witnessed ZPMC QC nondestructive (NDT) technician, Mr. Zhou Dong Yun perform magnetic particle testing (MT) and Visual Testing (VT), at mock-up 114.00 skin plate B assembly, top plate. The testing is performed at the plate splice mp1014 to MA101, weld number MUSC-MA-101-2, root pass weld, outside side and one hundred percent coverage. The testing appeared to be in general conformance with AWS D1.5 2002 requirements. At the conclusion of the MT testing, QC-MT nondestructive technician, Mr. Zhou Dong Yun reported that root pass weld is found acceptable. Following digital pictures illustrates MT in progress.



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| 4 | Mock-Up 114.00 | NA | NA | Caltrans MT Identification |
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The Caltrans QA Inspector performed visual test (VT) and MT examinations at mock-up 114.00 skin plate B assembly, top plate. The testing is performed at the plate splice mp1014 to MA101, weld number MUSC-MA-101-2, root pass weld, outside side. Following digital picture illustrates Caltrans QA, distinguishing inspection symbol, noting the MT testing has been performed on the root weld pass. . See Caltrans Magnetic Particle Test Report, TL6028, generated on this date for additional information.



### Summary of Conversations:

As identified within the contents of this report.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Hasler, Mike	Quality Assurance Inspector
<b>Reviewed By:</b>	Cuellar, Robert	QA Reviewer

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